

# MONTANA FISH, WILDLIFE & PARKS

# EAST ROSEBUD FISHING ACCESS SITE

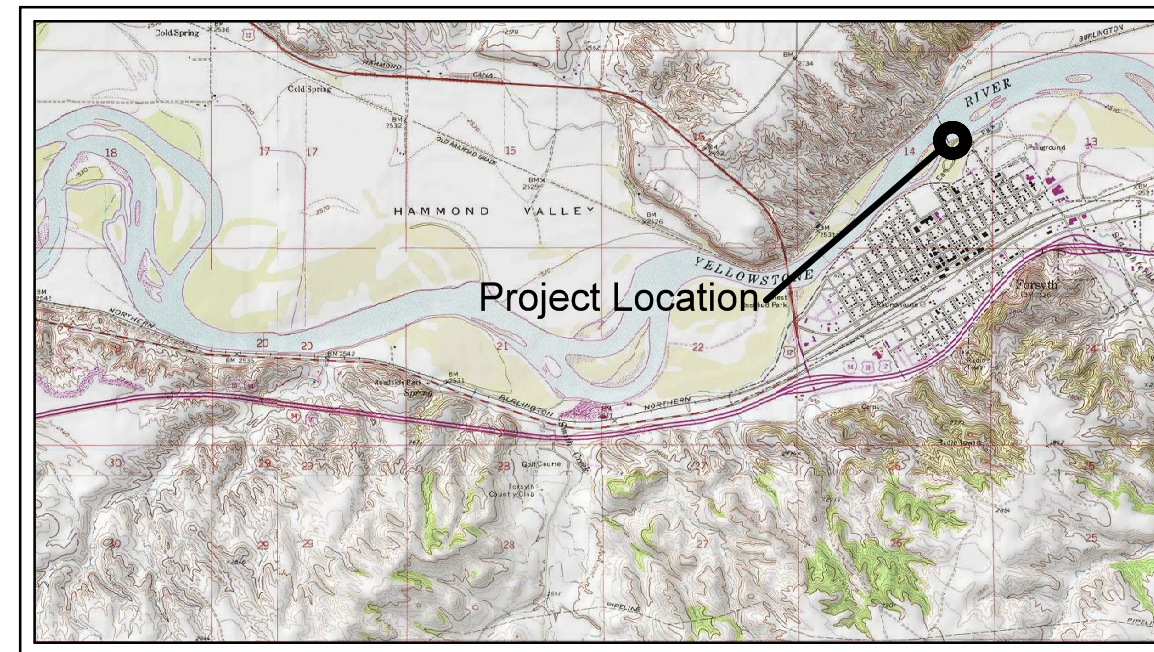
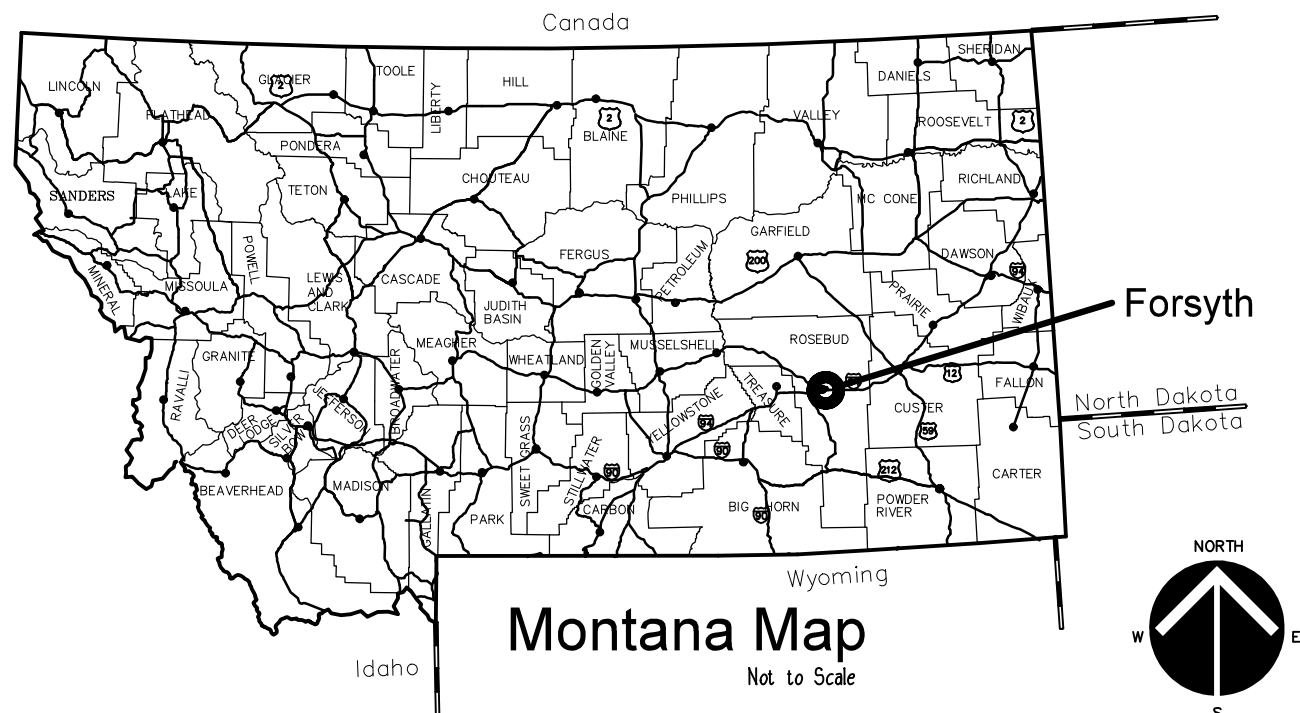
# ACCESSIBLE FISHING PLATFORM

FORSYTH, ROSEBUD COUNTY, MONTANA

FWP #7173723

sdi architects + design  
909 main street  
miles city, montana 59301  
406.234.0777

**sdi**  
architects + design



Local Map

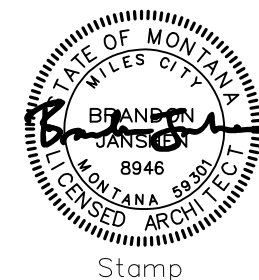
MONTANA FISH, WILDLIFE & PARKS  
DESIGN AND CONSTRUCTION

MAILING ADDRESS: PO BOX 200701  
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PHYSICAL ADDRESS:  
1522 9TH AVENUE

DRAWING INDEX:

|                     |                        |
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Rosebud East FAS Accessible Pier  
near Forsyth, Rosebud County, MT

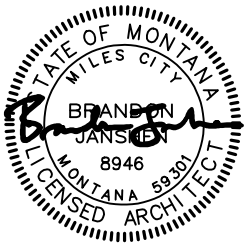
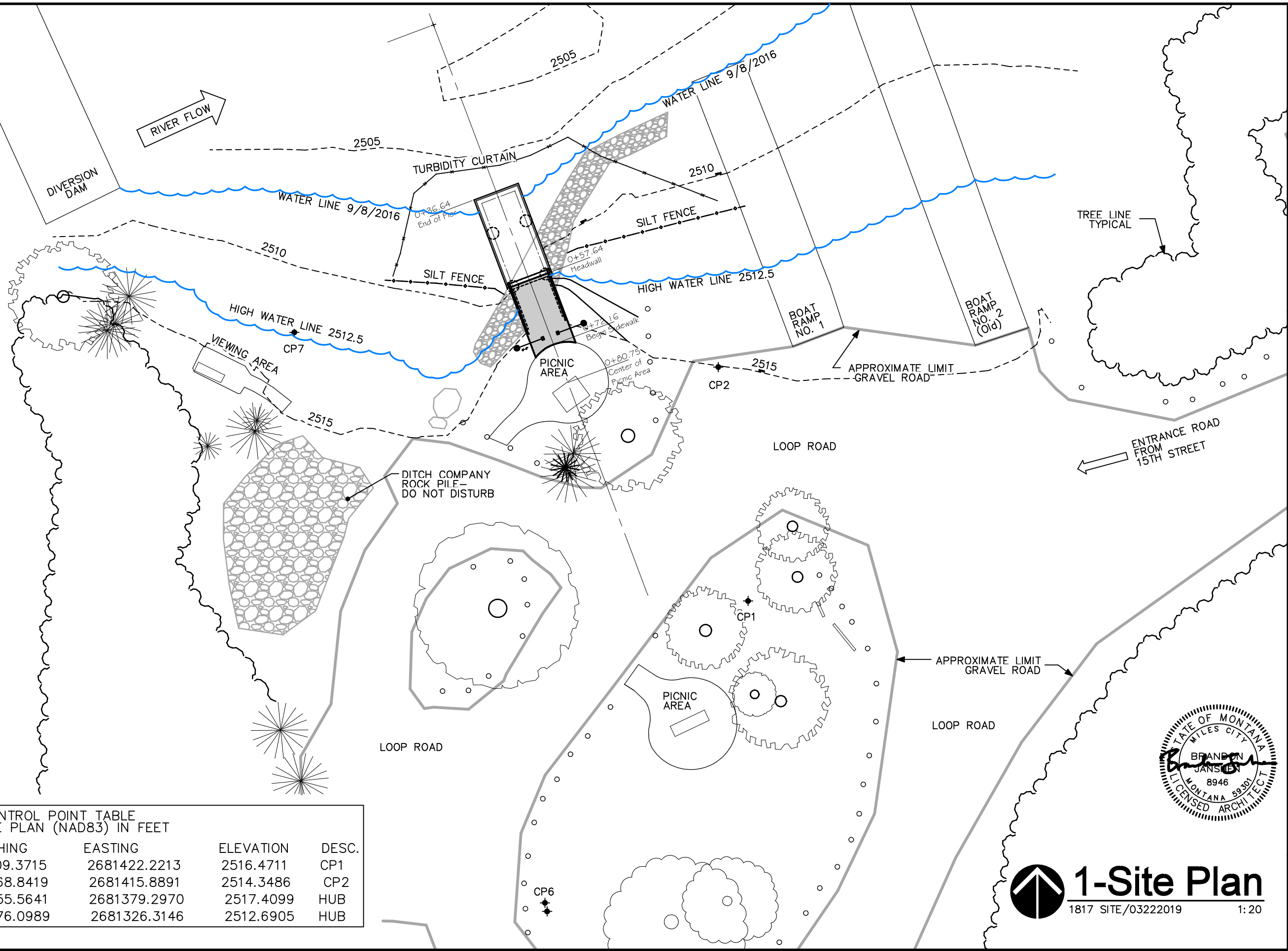
JOB # 1817 DATE 04/17/2019  
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Cover Sheet

G1.0  
1 of 1

4/17/2019 x:\Job Files\2015-2019\1817 - FWP E. Rosebud FAS\1817CAD\SHEETS\1817 C1.0

| COORDINATE CONTROL POINT TABLE<br>MONTANA STATE PLAN (NAD83) IN FEET |             |              |           |       |
|--|-------------|--------------|-----------|-------|
| Pt. No.  | NORTHING    | EASTING      | ELEVATION | DESC. |
| 1  | 750909.3715 | 2681422.2213 | 2516.4711 | CP1   |
| 2  | 750968.8419 | 2681415.8891 | 2514.3486 | CP2   |
| 6  | 750855.5641 | 2681379.2970 | 2517.4099 | HUB   |
| 7  | 750976.0989 | 2681326.3146 | 2512.6905 | HUB   |



1-Site Plan

1817 SITE/03222019

1:20

Rosebud East FAS Accessible Pier  
near Forsyth, Rosebud County, MT

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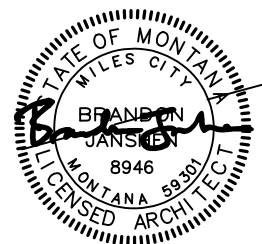
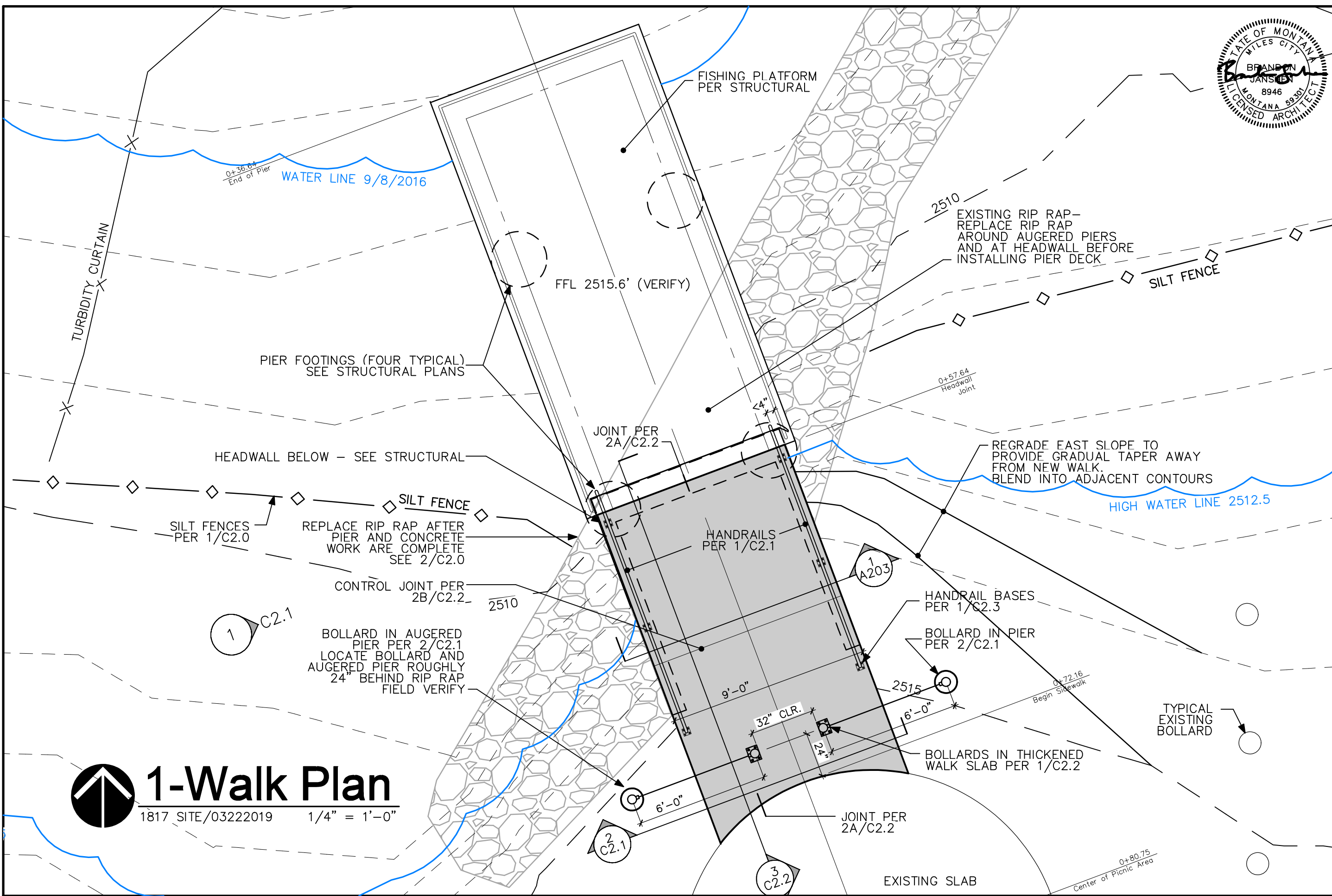
JOB # 1817 DATE 04/17/2019  
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Site Plan, Control Pts.

C1.0  
1 of 6



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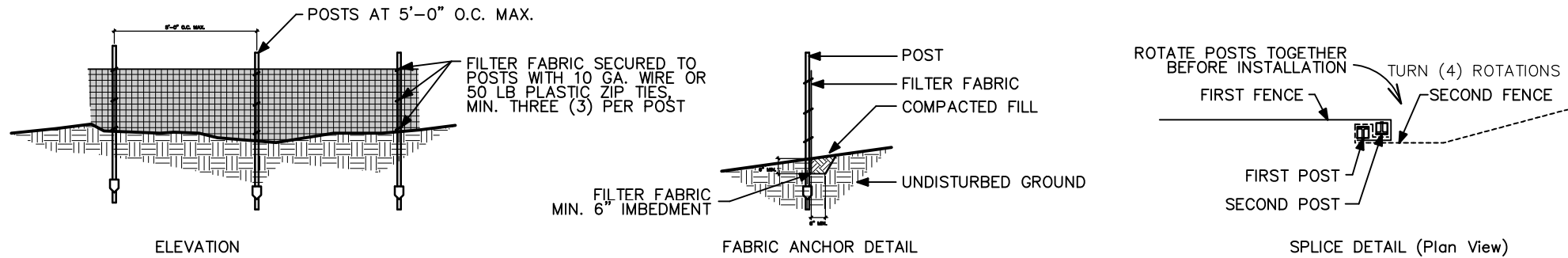
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**Rosebud East FAS Accessible Pier**  
near Forsyth, Rosebud County, MT

**Walk Plan**

**C1.1**  
2 of 6

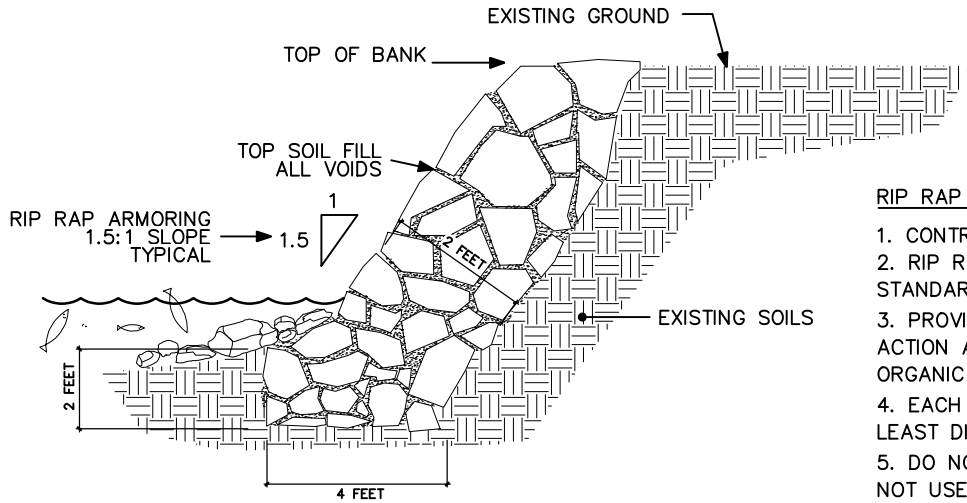
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- SILT FENCE NOTES:**
- 1. TEMPORARY SILT FENCE SHALL BE INSTALLED PRIOR TO ANY GRADING WORK IN THE PLATFORM AREA. FENCE SHALL BE MAINTAINED THROUGHOUT THE CONSTRUCTION PERIOD AND REMOVED IN CONJUNCTION WITH THE FINAL GRADING AND SITE STABILIZATION.
  - 2. FILTER FABRIC SHLL MEET THE REQUIREMENTS OF MPWS SPECIFICATION 02110 GEOTEXTILES.
  - 3. FENCE POSTS SHALL BE EITHER WOOD POST WITH A MINIMUM CROSS-SECTIONAL AREA OF 1.5" X 1.5" OR A STANDARD STEEL T POST.
  - 4. WHEN SPLICES ARE NECESSARY MAKE SPLICE AT POST ACCORDING TO SPLCE DETAIL. PLACE THE END POST OF THE SECOND FENCE INSIDE THE END POST OF THE FIRST FENCE. ROTATE BOTH POSTS TOGETHER AT LEAST 180 DEGREES TO CREATE A TIGHT SEAL WITH THE FABRIC MATERIAL. CUT THE FABRIC NEAR THE BOTTOM OF THE POSTS TO ACCOMMODATE THE 6 INC FLAP. THEN DRIVE BOTH POSTS AND BURY THE FLAP. COMPACT BACKFILL WELL.

# 1-Silt Fence

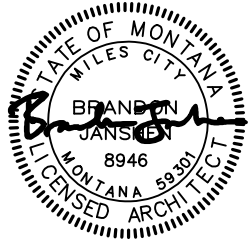
1817 SITE DETAILS/03252019 NOT TO SCALE



## 2-Rip Rap Repair

NOT TO SCALE

- RIP RAP SECTION NOTES:**
- 1. CONTRACTOR TO PROVIDE 10 C.Y. OF NEW MATERIAL TO SUPPLEMENT SALVAGED MATERIAL.
  - 2. RIP RAP MATERIALS: PROVIDE IN ACCORDANCE WITH STATE OF MONTANA TRANSPORTATION STANDARDS FOR CLASS II RIP-RAP. 2 FT. DIAMETER ALLOWING 40% SMALLER BY WEIGHT.
  - 3. PROVIDE STONE THAT IS HARD, DURABLE AND ANGULAR IN SHAPE, RESISTANT TO WATER ACTION AND WEATHERING, FREE FROM OVERBURDEN, SPOIL, SHALE, STRUCTURAL DEFECTS AND ORGANIC MATERIAL.
  - 4. EACH STONE MUST HAVE ITS GREATEST DIMENSION NOT GREATER THAN THREE TIMES ITS LEAST DIMENSION.
  - 5. DO NOT USE ROUNDED STONE OR BOULDERS FROM A STREAMBED SOURCE AS RIP-RAP. DO NOT USE SHALE OR STONES WITH SHALE SEAMS.
  - 6. ANGULAR FACES OF STONES SHALL INTER-LOCK TO PROVIDE STABLE SURFACE.
  - 7. PLACE RIP-RAP ALONG EDGES OF CONCRETE BOAT RAMP WHERE SHOWN.
  - 8. INSTALLED THICKNESS: 2 FT AVERAGE & 4 FT AT TOE.
  - 9. FILL VOIDS WITH TOP SOIL STORED FROM SITE EXCAVATION, OR CLEAN WEED FREE IMPORTED TOPSOIL.



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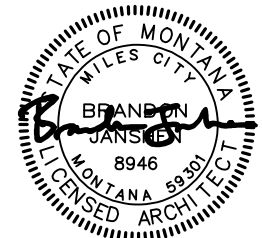
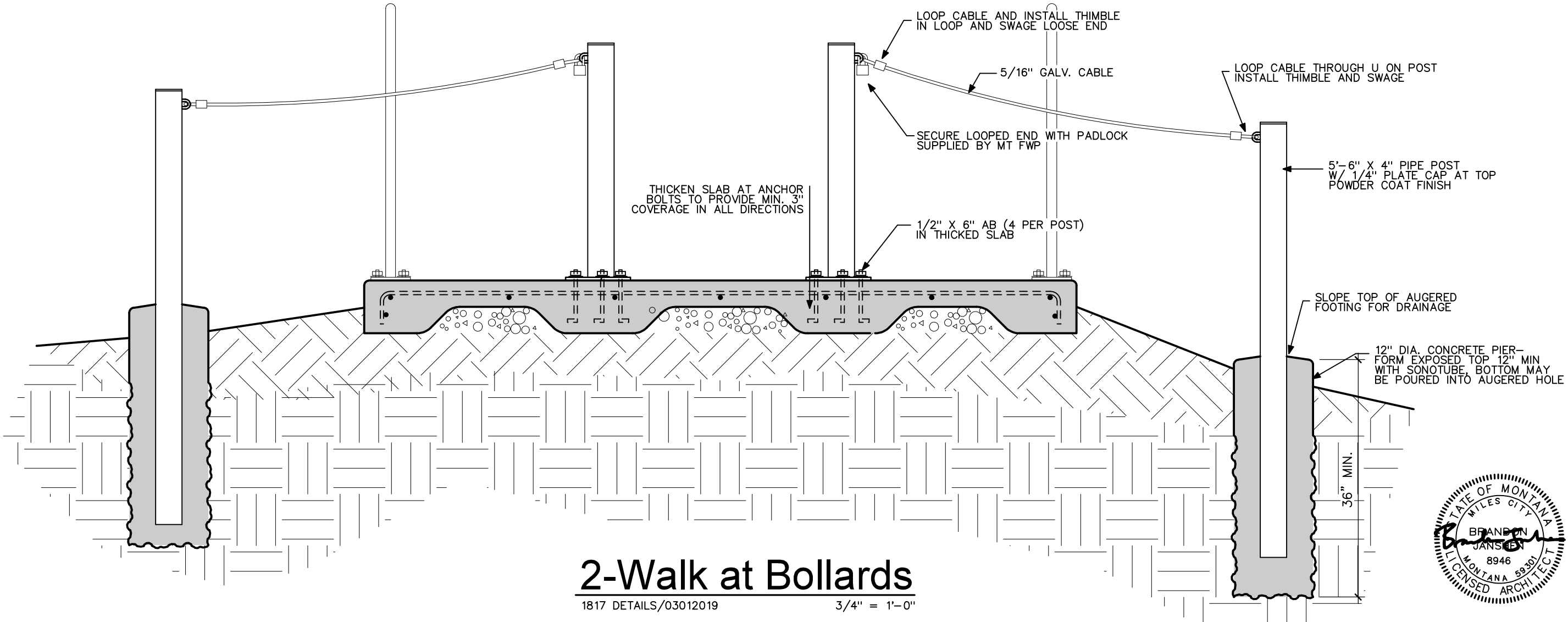
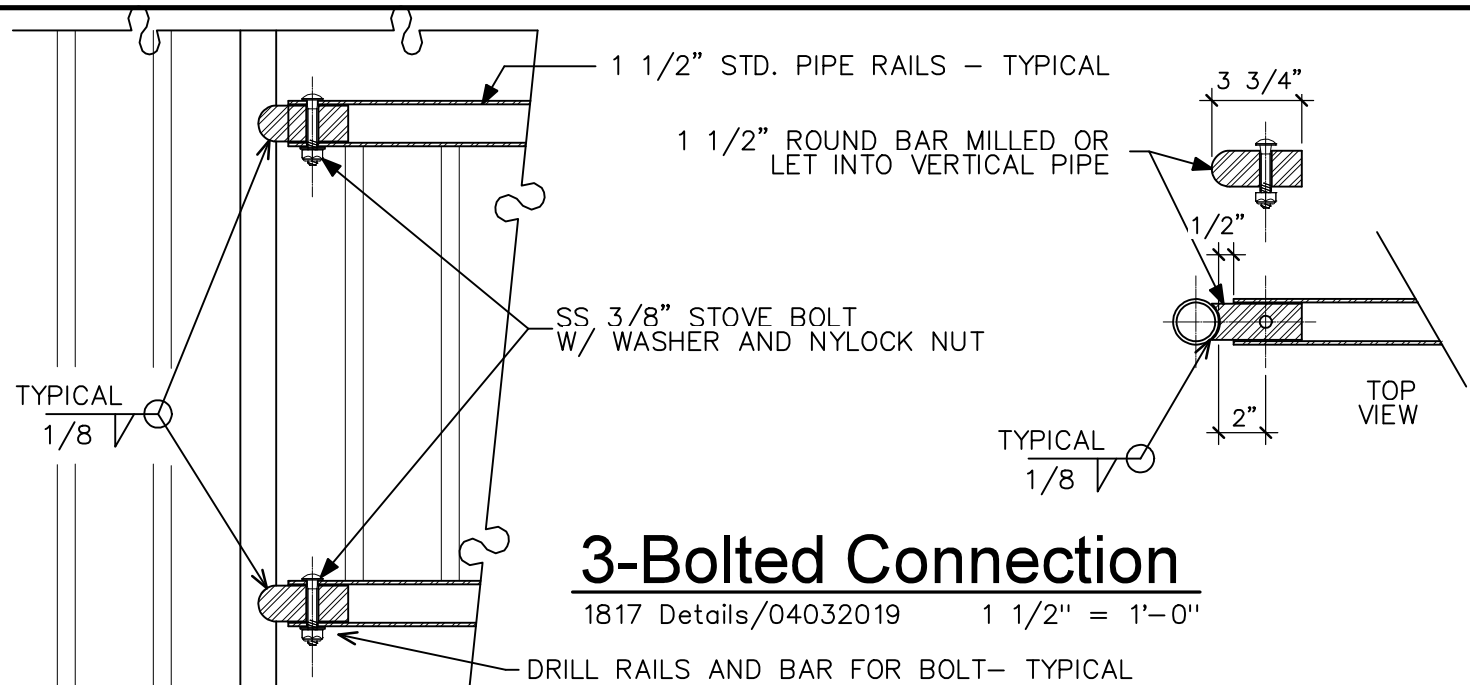
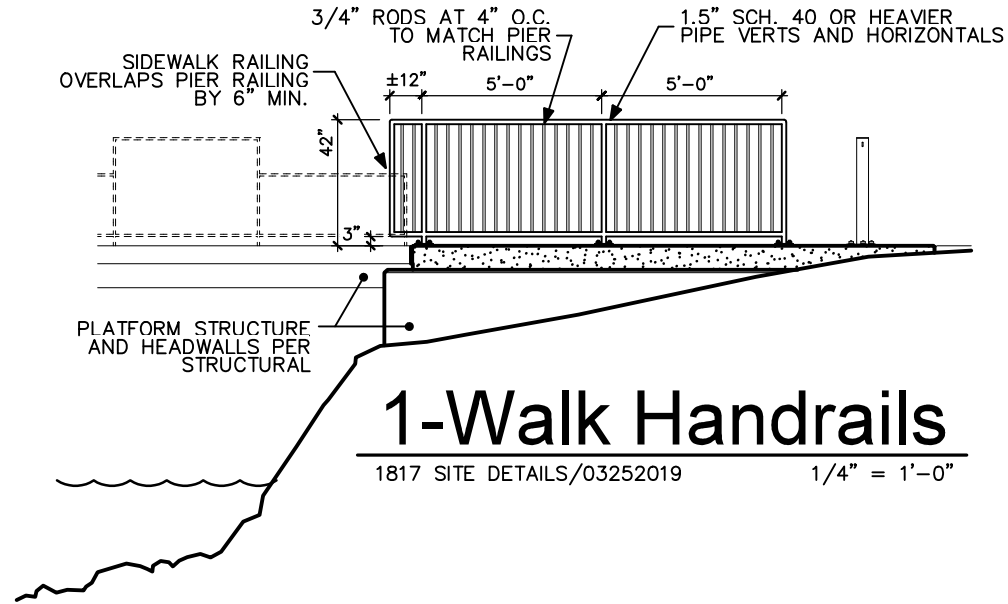
Rosebud East FAS Accessible Pier  
near Forsyth, Rosebud County, MT

JOB # 1817 DATE 04/17/2019  
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Details

C2.0  
3 of 6

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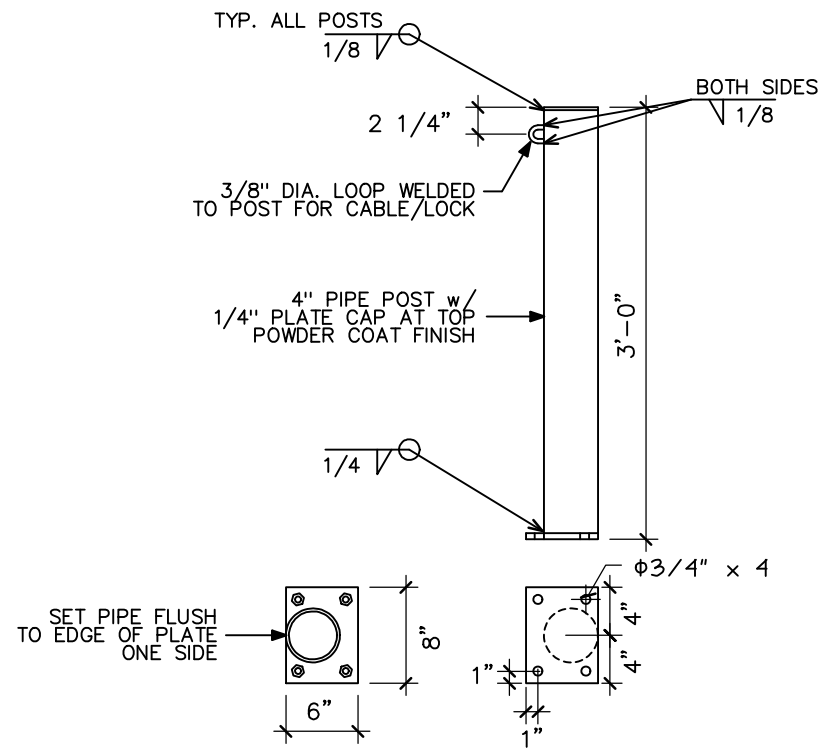
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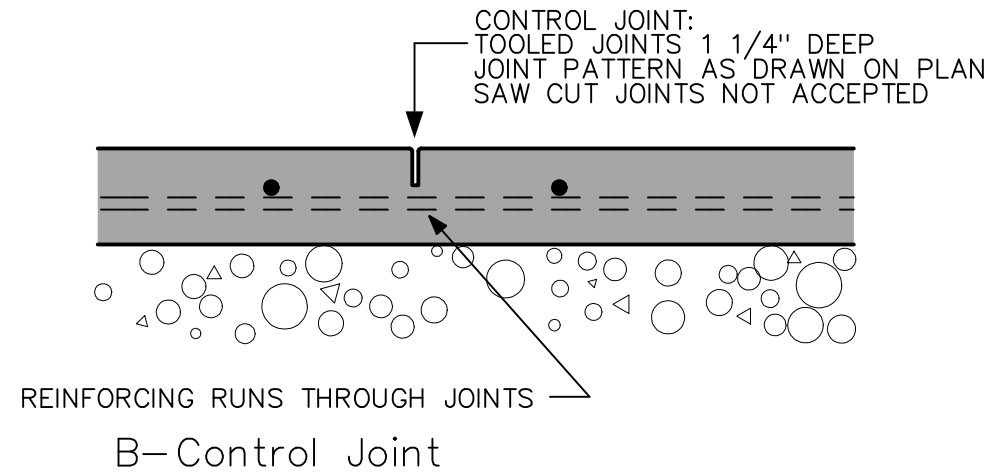
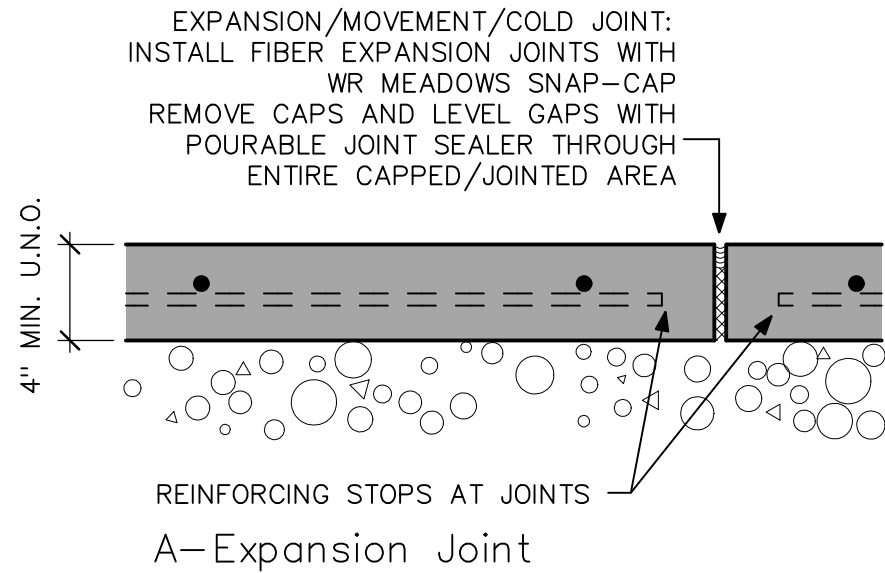
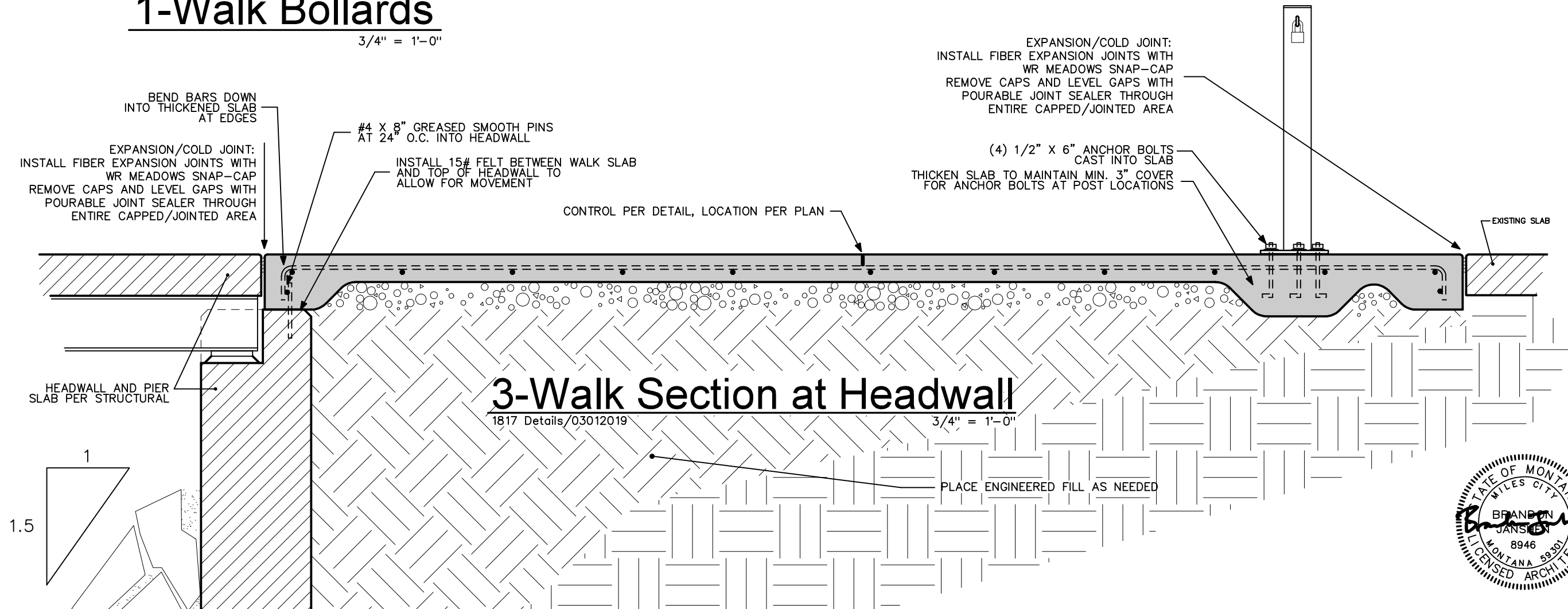
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|--|------|-----------------|---------------------|-------|----------------|
| Rosebud East FAS Accessible Pier<br>near Forsyth, Rosebud County, MT |      |                 | Section & Elevation |       | C2.1<br>4 of 6 |
| JOB #  | 1817 | DATE 04/17/2019 | DRAWN               | CBS   |                |
|  |      |                 | CHECK               | BJ/TM |                |

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## 1-Walk Bollards

3/4" = 1'-0"



## 2-Typical Slab Joints

1817 Details/03012019 1 1/2" = 1'-0"

Rosebud East FAS Accessible Pier  
near Forsyth, Rosebud County, MT

Section View & Details

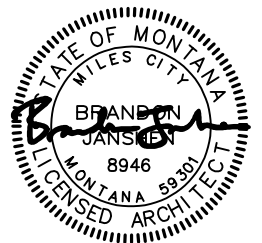
JOB # 1817 DATE 04/17/2019  
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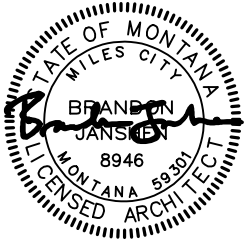
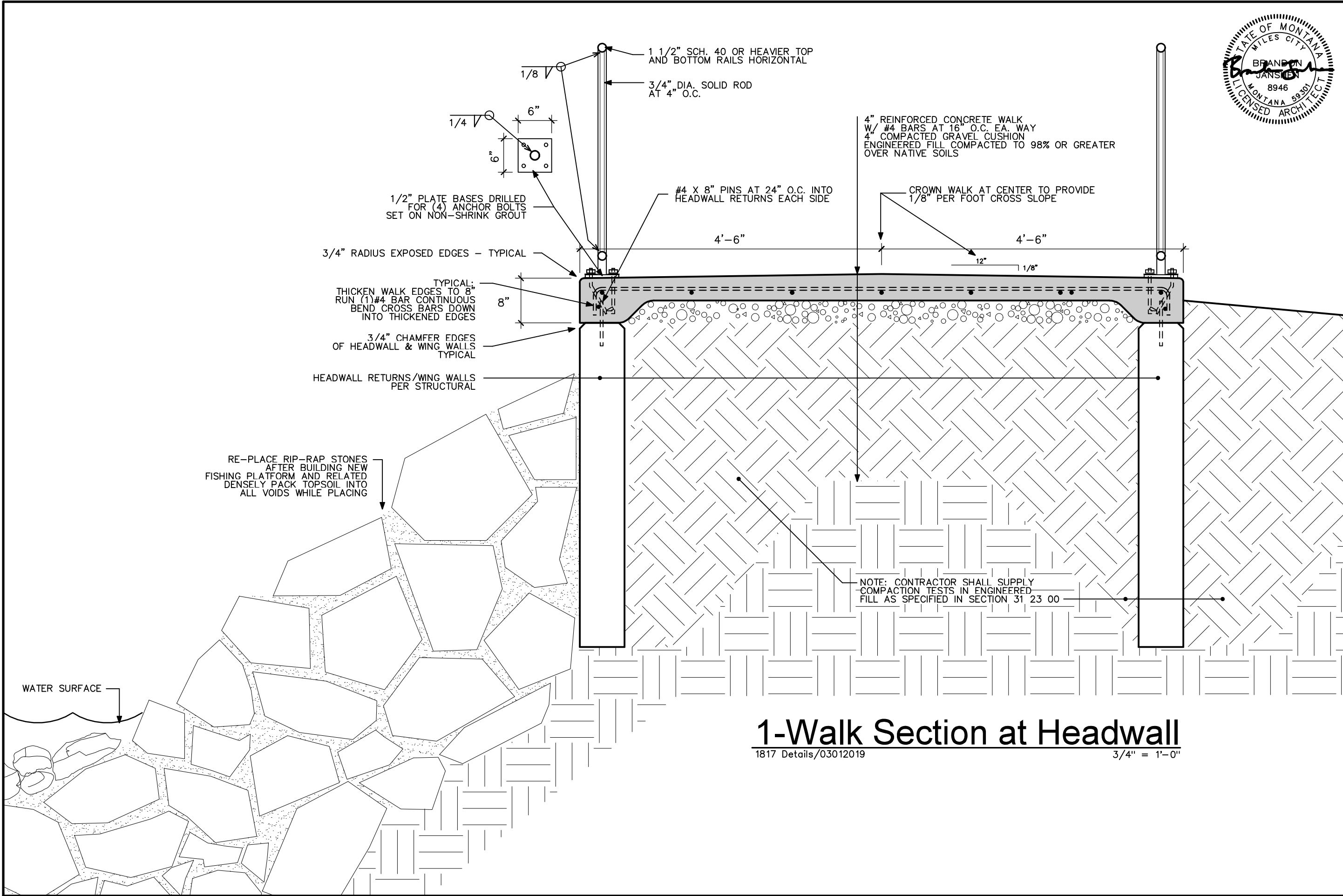
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C2.2  
5 of 6



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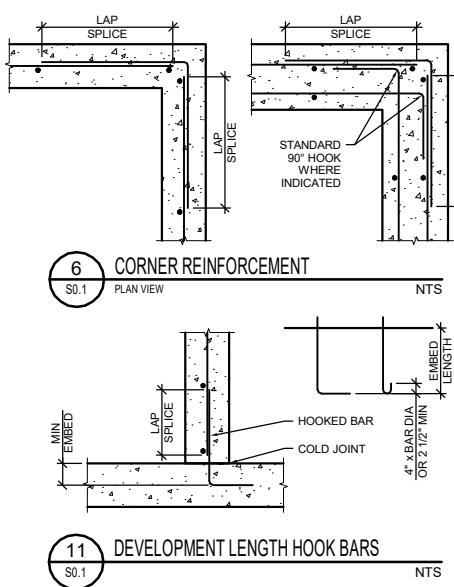


Rosebud East FAS Accessible Pier  
near Forsyth, Rosebud County, MT

JOB # 1817 DATE 04/17/2019  
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Section View

C2.3  
6 of 6



| DEVELOPMENT LENGTH HOOK BARS |   |
|------------------------------|---|
| BAR SIZE                     | EMBEDMENT LENGTH                                      |
| #3                           | 6"  |
| #4                           | 8"  |
| #5                           | 10"   |
| #6                           | 12"   |
| NOTES:                       |   |
| 1.                           | TYPICAL HOOKED BAR DEVELOPMENT UNLESS NOTED OTHERWISE |

| REINFORCEMENT DEVELOPMENT & LAP SPLICES |  |       |                         |        |
|---|--|-------|-------------------------|--------|
| BAR SIZE                                | DEVELOPMENT LENGTH   |       | CLASS 'B' SPLICE LENGTH |        |
|   | OTHER  | TOP   | OTHER                   | TOP    |
| #3                                      | 1'-5"  | 10"   | 10"                     | 2'-5"  |
| #4                                      | 1'-10"   | 2'-5" | 2'-5"                   | 3'-1"  |
| #5                                      | 2'-3"  | 3'-0" | 3'-0"                   | 3'-10" |
| #6                                      | 2'-9"  | 3'-7" | 3'-7"                   | 4'-8"  |
| NOTES:                                  |  |       |                         |        |
| 1.                                      | TYPICAL HOOKED BAR DEVELOPMENT UNLESS NOTED OTHERWISE.   |       |                         |        |
| 2.                                      | TOP BARS ARE DEFINED AS HORIZONTAL REINFORCEMENT SUCH THAT MORE THAN 12" OF FRESH CONCRETE IS CAST BELOW THE DEVELOPMENT LENGTH OR SPLICE. WALLS ARE EXCLUDED. |       |                         |        |

MATERIALS AND STRENGTHS

| STEEL SCHEDULE              |  |
|-----------------------------|--|
| ITEM                        | ASTM DESIGNATION   |
| BASE PLATES                 | A36, 36 KSI  |
| BEAMS                       | A992, 50 KSI   |
| MISC PLATES & SHAPES        | A36, 36 KSI  |
| PIPE                        | A53 Gr. B, 35 KSI  |
| HIGH-STRENGTH BOLTS         | F3125 (A325 BOLT, F436 WASHER, A563 NUT)                           |
| ANCHOR RODS (THREADED RODS) | F1554 Gr. 36 (HEAVY HEX NUT A563, A36 PLATE WASHER, F844 WASHER)   |
| HEADED STUD ANCHORS (HSA)   | A108, AWS D1.1-TYPE B 3/4" DIA UNO                                 |
| WELDING ELECTRODES          | E70xx FOR SHAPES AND PLATES; E60xx FOR DECK AND COLD-FORMED SHAPES |

| CONCRETE SCHEDULE: ASTM C150 TYPE I-II CEMENT |                             |                      |                      |                    |
|---|-----------------------------|----------------------|----------------------|--------------------|
| ITEM  | 28-DAY COMPRESSIVE STRENGTH |                      |                      | REMARKS            |
|   | 4000 PSI W/C .50 MAX        | 4000 PSI W/C .45 MAX | 4500 PSI W/C .42 MAX |                    |
| PIERS & FOUNDATION WALLS                      | ●                           |                      |                      | 5-7% ENTRAINED AIR |
| ELEVATED SLAB                                 |                             |                      | ●                    | 5-7% ENTRAINED AIR |
| EXTERIOR SLAB ON GRADE                        |                             | ●                    |                      | 5-7% ENTRAINED AIR |
| REINFORCING STEEL                             | ASTM A615 GRADE 60          |                      |                      |                    |

| EARTHWORK CRITERIA  |                                 |
|---|---------------------------------|
| GEOTECHNICAL REPORT:  |                                 |
| RAWHIDE ENGINEERING INC   | DATED: JULY 31, 2018            |
| ALLOWABLE BEARING PRESSURE  | 3000 PSF                        |
| CONCRETE PIERS  | 30 KIP CAPACITY                 |
| COMPACTION REQUIREMENTS:  | ASTM D698 - MAXIMUM DRY DENSITY |
| BELOW FOUNDATION  | 98%                             |
| UNDER SLABS   | 98%                             |
| AROUND EXTERIOR FOUNDATION WALLS  | 98%                             |
| NOTE: ALL FILL TO BE PLACED IN 8" LIFTS UNO   |                                 |
| 1. THIS PROJECT WILL REQUIRE A DEWATERING PLAN DURING CONSTRUCTION. THE DEWATERING PLAN SHOULD BE DESIGNED BY AN ENGINEER WITH EXPERIENCE DESIGNING DEWATERING SYSTEMS AND THEIR EFFECT ON ADJACENT STRUCTURES. |                                 |
| 2. REFER TO GEOTECHNICAL REPORT FOR FULL RECOMMENDATIONS  |                                 |

STRUCTURAL NOTES

GOVERNING CODES

International Building Code IBC2012

CONCRETE CONSTRUCTION

Comply with ACI 318 and ACI 301 (latest adoption).

Comply with ACI 315 Manual of Standard Practice.

Reinforcement

Cover Requirements - Cast Against Earth - 3" (clear dimension)

- Walls, slabs, columns - 1 1/2"

Corner Bars - Size & spacing to match horizontal bars

Use only steel or concrete supports where reinforcing weight is to be carried.

Plastic supports are acceptable where weight of reinforcing is not carried.

Dowels as specified to match vertical bar size and spacing UNO.

Secure reinforcing bars, AB and embedded items prior to placing concrete.

Slab on Grade – Reinforce with FIBERMESH 150 polypropylene Fibers

At the rate of 1.5 pounds per cubic yard

Underlain slab with a 4" layer of granular material.

Slab control joints:

Joints to be 1/8" wide x ¼ the slab depth.

GC to submit a control joint plan for review, spacing 9'0 OC max.

Dry pack grout under bearing and baseplates. 5000 psi non-shrink.

Chamfer exposed corners 3/4" UNO.

Submit concrete mix design for each mix.

Submit rebar shop drawings.

PRECAST CONCRETE OPTION

At contractor option, the elevated concrete platform may be constructed of

Precast concrete in lieu of cast in place concrete.

The platform shall be 6 inch solid concrete, cast and set as one piece unless

Otherwise approved by engineer.

Design live load 100 PSF minimum.

Design shall bear the seal of a registered MT professional engineer.

After precast concrete units have been placed and secured, grout open

spaces at keyways, connections, and joints.

Precast manufacturer to furnish all precast connecting hardware as indicated

Chamfer exposed beam and column corners 3/4" UNO

STEEL CONSTRUCTION

Detail and fabricate in accordance with AISC Manual of Steel Construction

& Code of Standard Practice, latest editions.

All structural steel to be prime painted. Refer project specifications.

All welds to be continuous 3/16" throat fillet weld UNO.

Burning of holes or cutting in the field is not permitted unless authorized

by the structural engineer.

Submit steel shop drawings.

GENERAL NOTES

The contractor shall verify the existing conditions and notify the

engineer of any conditions affecting the new construction.

Provide temporary support during construction as required, until structural

elements are permanently attached.

Drawings indicate structure in final

form capable of supporting design

loads.

ABBREVIATIONS

UNO - - - - - Unless Noted Otherwise

TW - - - - - Top of Wall

TF - - - - - Top of Footing

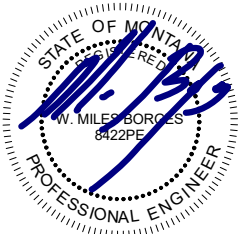
GC - - - - - General Contractor

A/E - - - - - Architect and Engineer of

Record

HSA - - - - - Headed Anchor Studs

AB - - - - - Anchor Bolts



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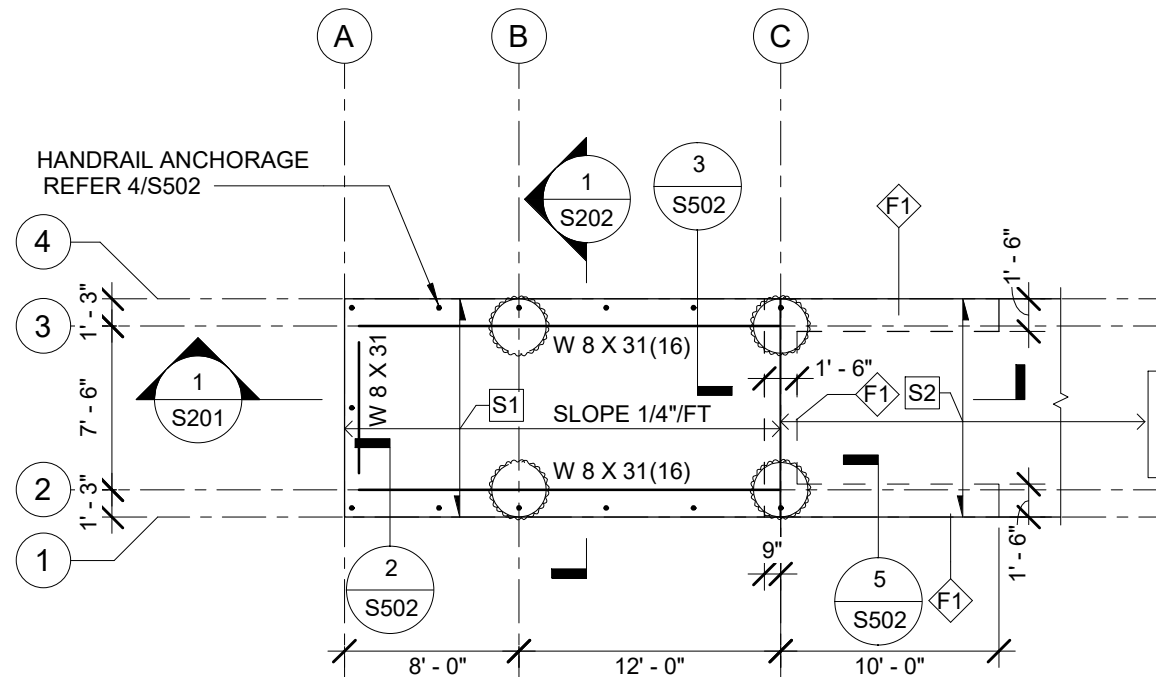
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Wildlife & Parks

DESIGN CRITERIA & NOTES  
EAST ROSEBUD FISHING ACCESS SITE

Whitten & Borges, PC  
Structural Engineers  
645 Grand Avenue  
Suite 111  
Billings, Montana 59101  
(406) 245-5449  
www.whittenborges.com

SHEET: 1 of 6

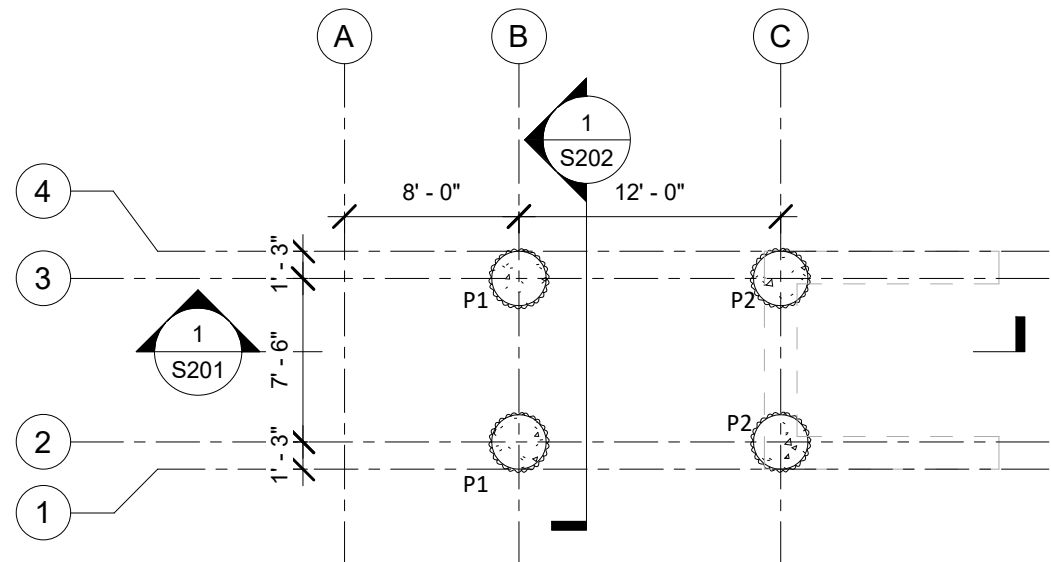




(16) - INDICATES NUMBER OF 3/4\"DIA X 5\" HSA EQUAL SPACED ON BEAM (Note: FOR PRECAST OPTION SEE 7/S502)

## 1 PLATFORM LEVEL

1/8\" = 1'-0\"



## 2 FOUNDATION LEVEL

1/8\" = 1'-0\"

| SLAB SCHEDULE |   |
|---------------|---|
| MARK          | DESCRIPTION   |
| S1            | 6\" REINFORCED ELEVATED SLAB OR PRECAST CONCRETE PLANK<br>REFER TO STRUCTURAL NOTES |
| S2            | REFER TO CIVIL DRAWINGS   |

| FOUNDATION WALL SCHEDULE |                                      |
|--------------------------|--------------------------------------|
| MARK                     | WALL CONSTRUCTION                    |
| F1                       | 18\" CONC SEE DETAIL FOR REINFORCING |

| PIER SCHEDULE |        |             |              |
|---------------|--------|-------------|--------------|
| TYPE MARK     | DIA    | REINF       | TIES         |
| P1            | 2'-6\" | (6) #6 VERT | #4 @ 16\" OC |
| P2            | 2'-6\" | (6) #6 VERT | #4 @ 16\" OC |



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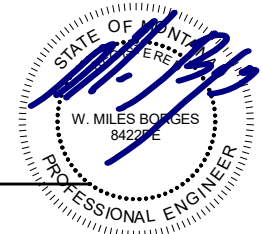
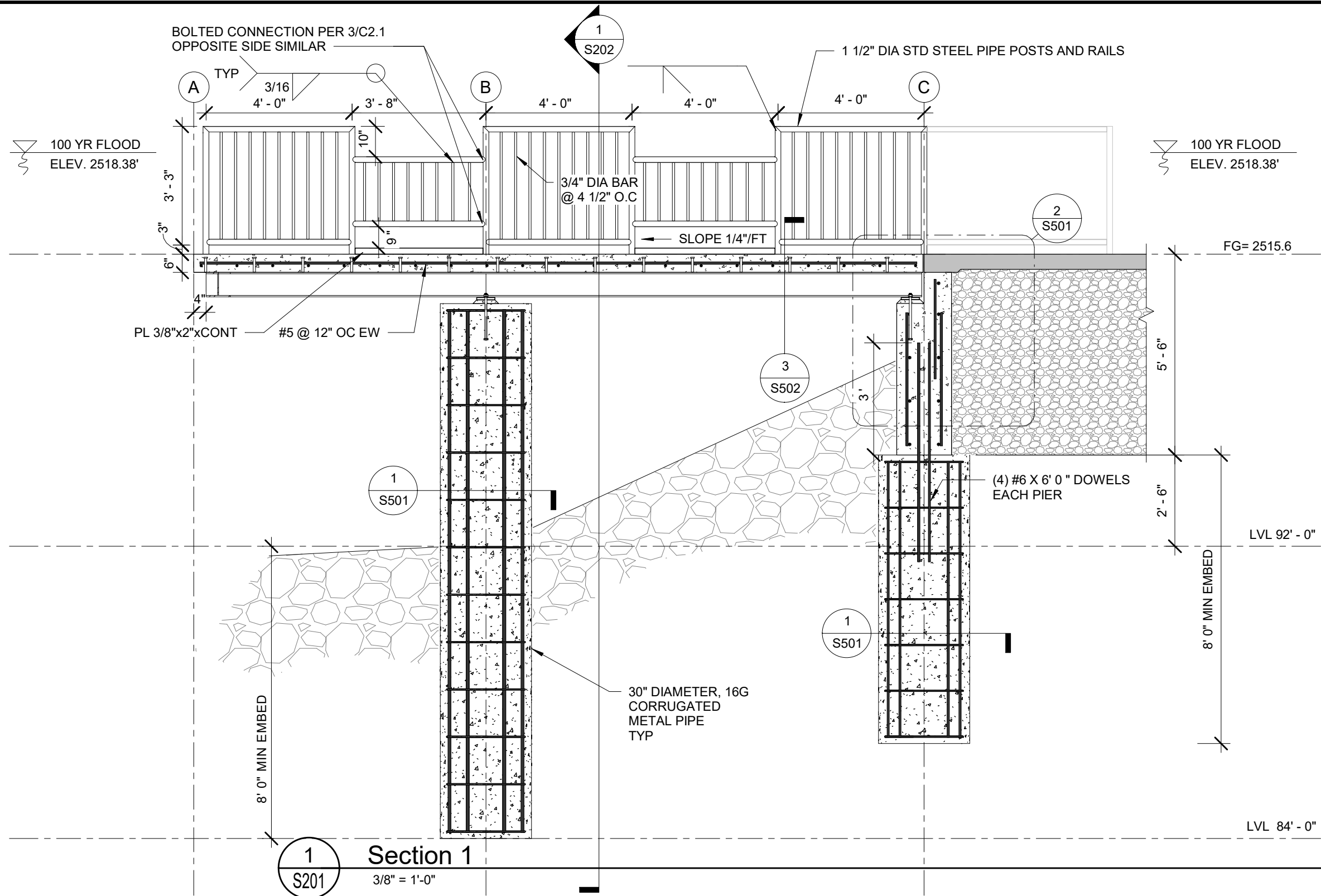
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Wildlife & Parks**

# PLAN VIEWS

## EAST ROSEBUD FISHING ACCESS SITE

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 Structural Engineers  
 645 Grand Avenue  
 Billings, Montana 59101  
 (406) 245-5449  
 www.whittenborges.com

SHEET: 2 of 6



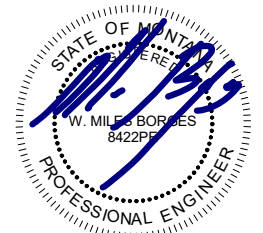
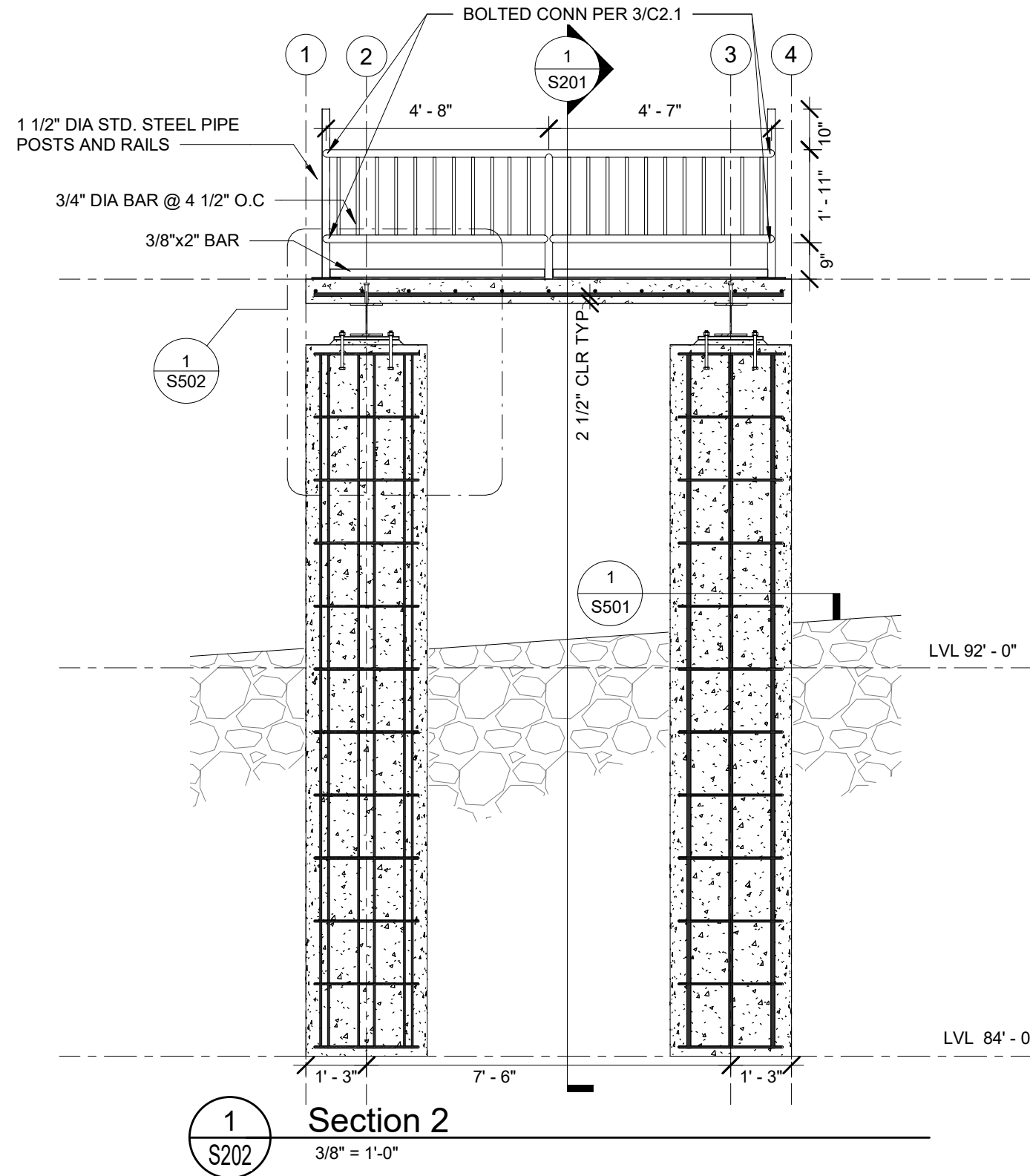
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 Wildlife & Parks**

# **ELEVATION** **EAST ROSEBUD FISHING ACCESS SITE**

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 Structural Engineers  
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 Suite 111  
 Billings, Montana 59101  
 (406) 245-5449  
 www.whittenborges.com

**SHEET: 3 of 6**



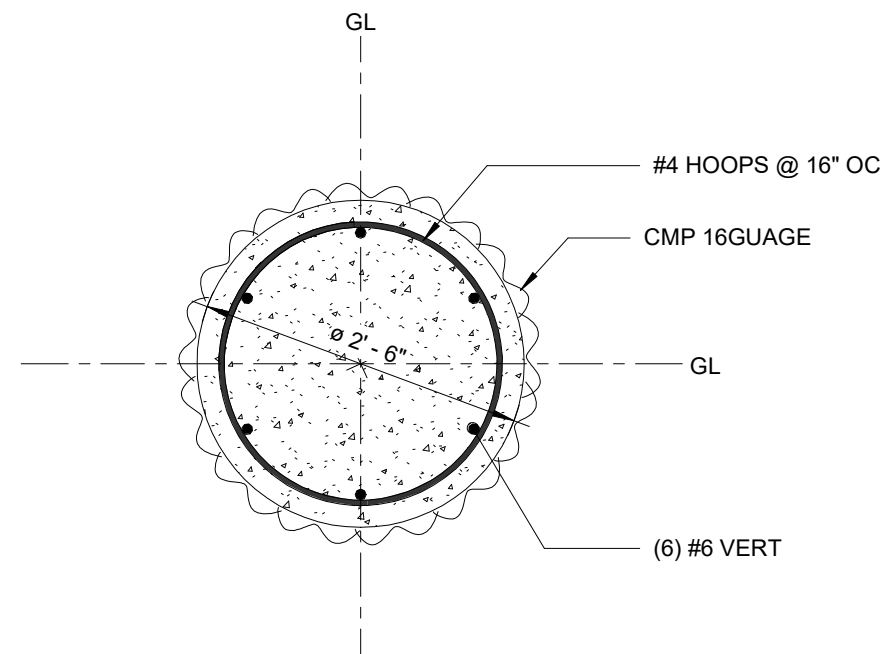
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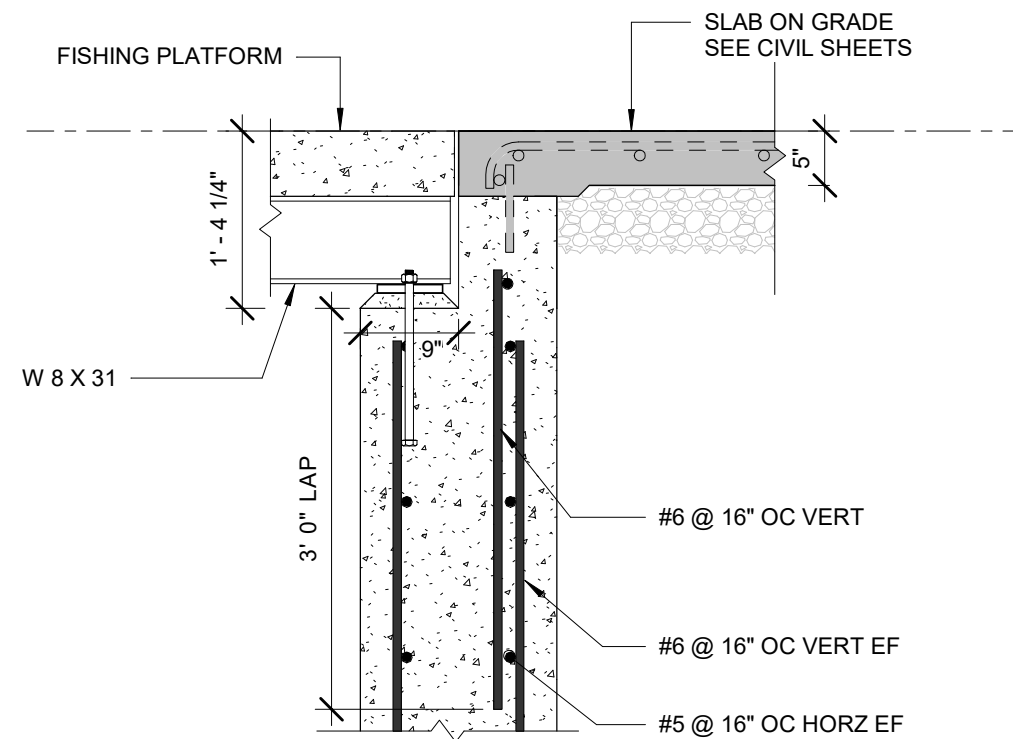
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 of 6



1  
S501

TYP P1/P2 PIER PLAN

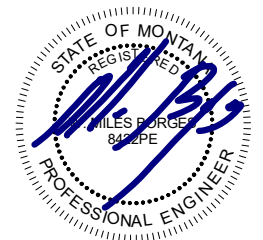
3/4" = 1'-0"



2  
S501

W8 TO HEADWALL CONN

3/4" = 1'-0"



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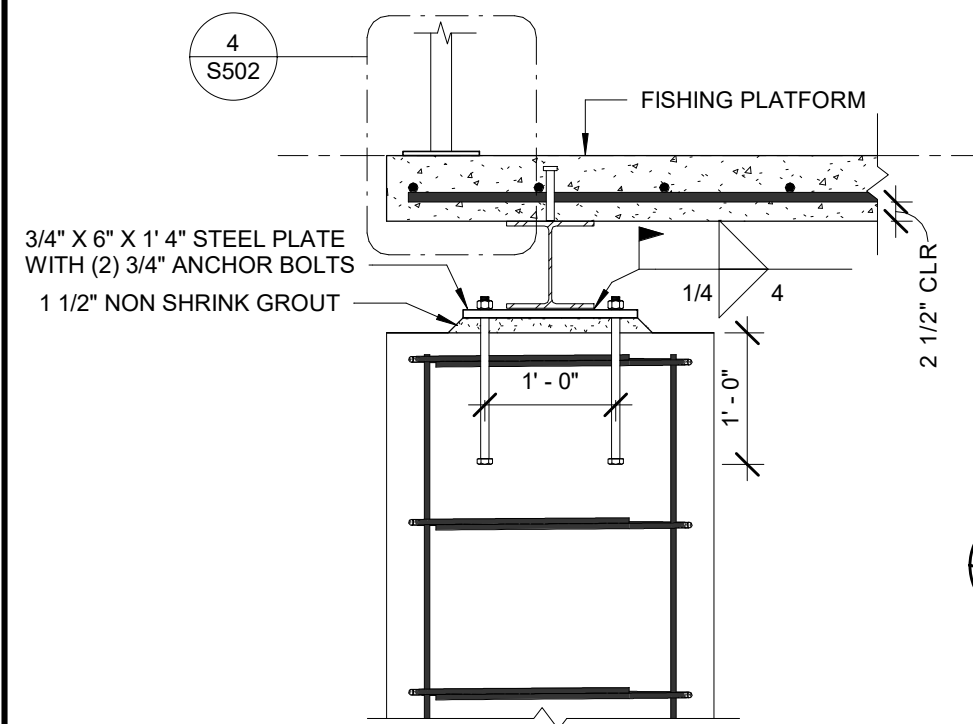
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# DETAILS EAST ROSEBUD FISHING ACCESS SITE

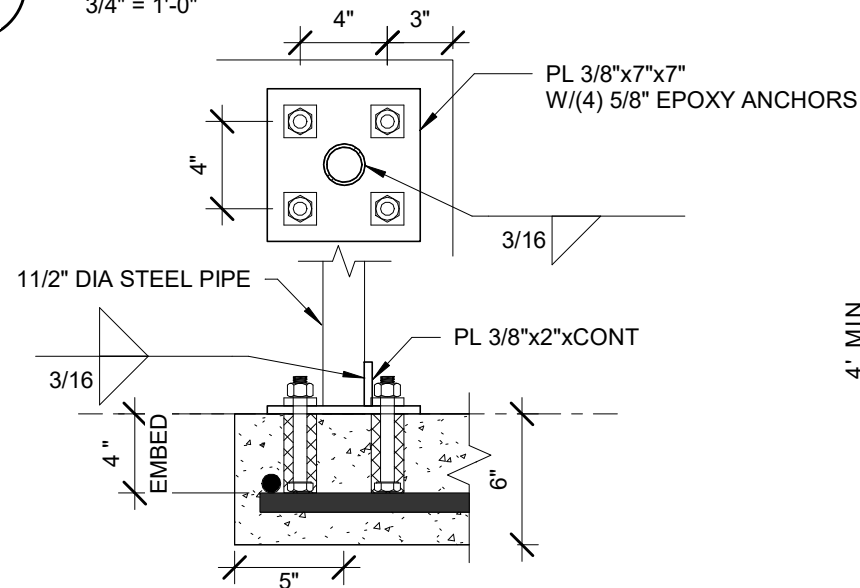
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Suite 111  
Billings, Montana 59101  
(406) 245-5447  
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SHEET: 5 of 6

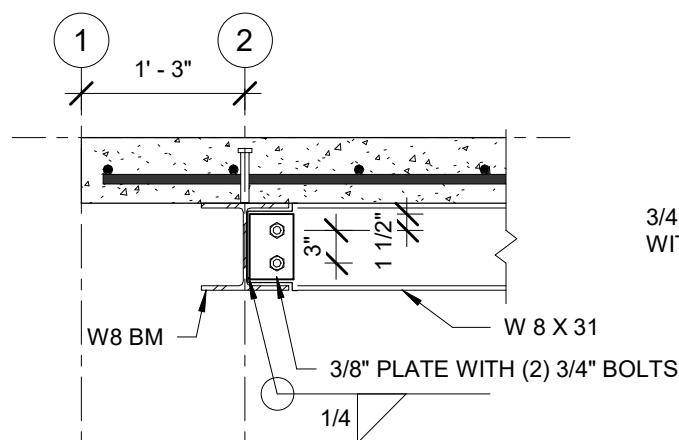




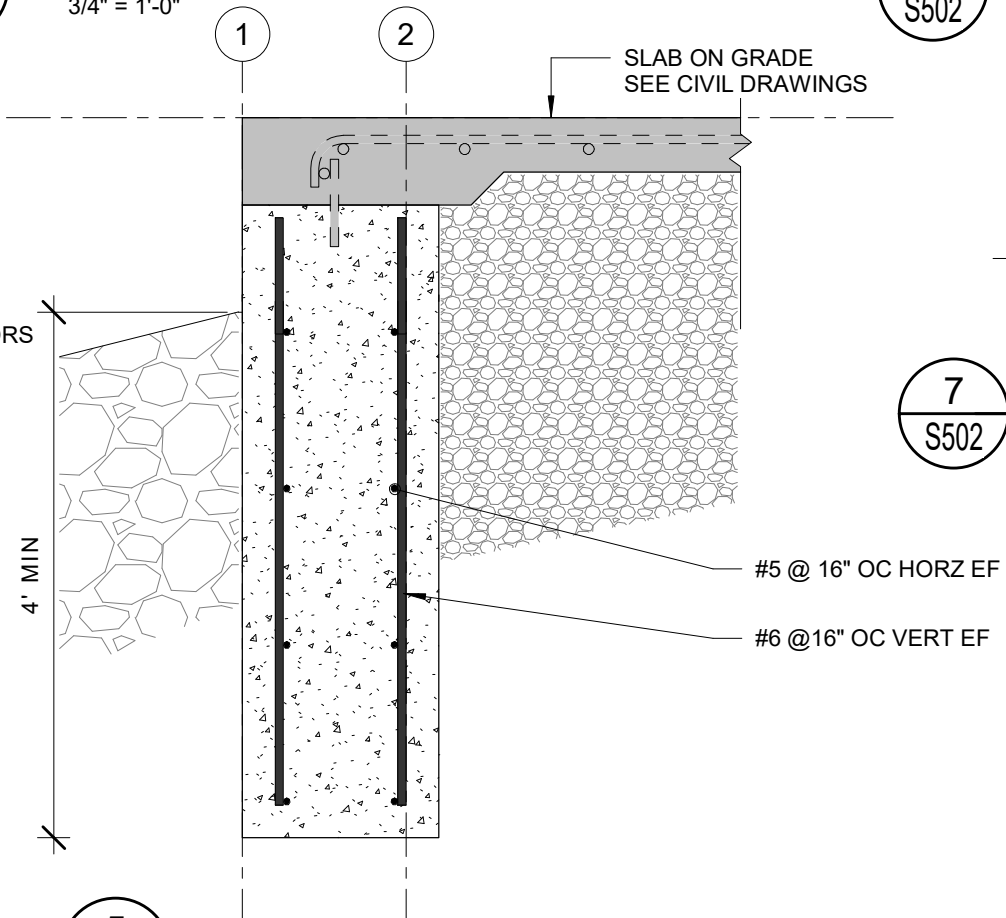
**1**  
S502  
**W8 TO PIER CONNECTION**  
3/4" = 1'-0"



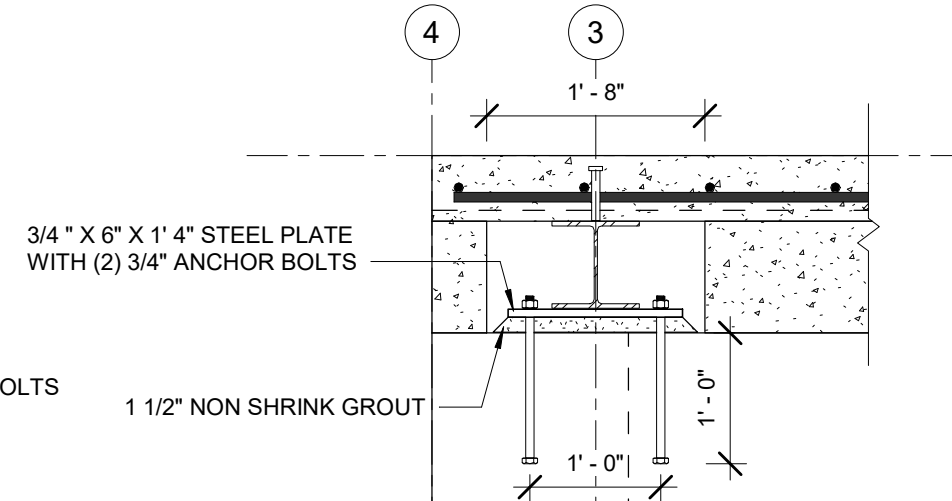
**4**  
S502  
**GUARDRAIL TO SLAB CONN**  
1 1/2" = 1'-0"



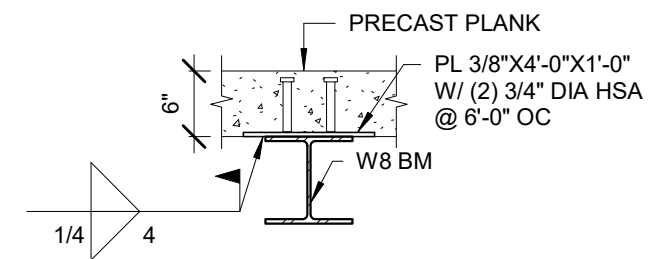
**2**  
S502  
**W8 TO W8 CONNECTION**  
3/4" = 1'-0"



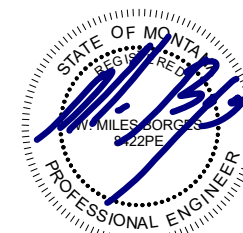
**5**  
S502  
**SLAB ON GRADE**  
3/4" = 1'-0"



**3**  
S502  
**BEAM POCKET**  
3/4" = 1'-0"



**7**  
S502  
**PRECAST OPTION-WF CONN**  
3/4" = 1'-0"



SKB  
DRAWN BY: DATE:  
WMB 4/10/2019  
CHECKED BY: DATE:

**Montana Fish,  
Wildlife & Parks**

## DETAILS EAST ROSEBUD FISHING ACCESS SITE

Whitten & Borges, PC  
Structural Engineers  
645 Grand Avenue  
Billings, Montana 59101  
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